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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,795	07/13/2006	Martin Howlid	14 0228-PCT-US	4505
28116	7590	11/30/2009	EXAMINER	
WesternGeco L.L.C. Kevin McEnaney 10001 Richmond Avenue HOUSTON, TX 77042-4299			HUGHES, SCOTT A	
			ART UNIT	PAPER NUMBER
			3663	
			NOTIFICATION DATE	DELIVERY MODE
			11/30/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/552,795

Applicant(s)

HOWLID ET AL.

Examiner

SCOTT A. HUGHES

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60, 62, 63 and 65-83 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4, 10, 11, 17, 31-60, 62, 63 and 65-81 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-9, 12-16, 18-30, 82 and 83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-840)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/10/2009 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-83 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the Kirby reference does not teach that the deflector device is submerged beneath the water. Although Kirby does not teach a deflector submerged beneath the water, it is known in the art to use deflector device connected to source arrays that are towed beneath the water (See Elholm, US Patent 5532975).

Applicant's amendments to claim 82 are sufficient to overcome the previous rejection under 35 U.S.C. 112.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 8-9, 12-16, 18-19, 21, 25-26, and 82-83 are rejected under 35 U.S.C. 102(b) as being anticipated by Elholm (5532975).

With regard to claim 1, Elholm discloses a seismic survey system for use in water (abstract) (Figs. 2-7). Elholm discloses a source array 1 (Fig. 7) (Column 4, Lines 5-16). Elholm discloses an independently steerable deflector device 4' coupled to the source array 1 (Fig. 7), wherein the deflector device controls a position of the source array by changing an angle of attack of the deflector device with respect to a direction of tow while maintaining the source array in a substantially inline direction (Column 2, Lines 40-64; Column 5, Lines 43-67) (Figs. 1, 5-7). Elholm discloses that the deflector device is submerged underwater (Column 3, Lines 30-50; Column 4, lines 8-17; Column 5, Lines 43-67). Elholm discloses a positioning system to determine a location of the source array (Column 4, Lines 34-40; Column 5, Lines 34-43).

With regard to claim 2, Elholm discloses that the source array trails directly behind the steerable deflector in the inline direction (Fig. 7).

With regard to claim 8, Elholm discloses a computerized controller for controlling the position of the deflector device (Column 5, Lines 25-67).

With regard to claim 9, Elholm discloses that the desired position is the same position as in a previous survey (Column 1). Elholm discloses moving the source arrays with respect to the vessel in desired directions based on the vessel path.

With regard to claim 12, Elholm discloses a positioning unit attached to the source array (positioning unit is on device 4', which is attached to the source array 1)

(Fig. 7), wherein the positioning unit provides a signal to inform the controller of a current position of the source array (Column 5, Lines 25-67).

With regard to claim 13, Elholm discloses that a source is triggered when the array is at a desired position (Column 1; Column 4, Lines 5-16).

With regard claim 14, Elholm discloses that the controller is positioned on a towing vessel (Column 5, Lines 25-43). Elholm discloses a further controller in the deflector device, and therefore a combination of controllers on the deflector and towing vessel (Column 5, Lines 25-67).

With regard to claim 15, Elholm discloses that the deflector device comprises one or more wings 5, 6, 7, 8 and a central body 30, wherein the one or more wings are disposed adjacent to the central body (Figs. 2a-c) (Column 4, Lines 17-27).

With regard to claim 16, Elholm discloses that the wings 5,6 are in a generally vertical arrangement (Figs. 2a-c, 7).

With regard to claim 18, Elholm discloses an actuator disposed adjacent to the central body, wherein a controller sends a signal to the actuator, and wherein the actuator moves the one or more wings (Fig. 3) (Column 4, Line 27 to Column 5, Line 15).

With regard to claim 19, Elholm discloses that the actuator uses a motive force that is hydraulic (Column 4, Lines 27-55).

With regard to claim 21, Elholm discloses that the total area of the wings is between about 1 and about 7 square meters (Figs. 2-7). From the figures and

description of distances in Column 1, it is clear that the wings have an area between 1 and 7 square meters.

With regard to claim 25, Elholm discloses that the source array comprises one or more adjacent subarrays coupled by a distance rope (Figs. 1, 7) (Column 4, Lines 8-17).

With regard to claim 26, Elholm discloses a second independently steerable deflector coupled to a second source array (Fig. 1).

With regard to claim 82, Elholm discloses a seismic survey system for use in water (abstract). Elholm discloses a source array 1 having a first subarray and a second subarray (Fig. 1) (Column 4, Lines 8-17). Elholm discloses a positioning system to determine a location of the source array (Column 4, Lines 34-40; Column 5, Lines 34-43). Elholm discloses a first deflector device 4,4' coupled to the first subarray and a second deflector device 4,4' coupled to the second subarray (Fig. 1) (Column 4, Lines 8-27). Elholm discloses that the first and second deflector devices are configured to control a position of the source array by changing an angle of attack of the first and second deflector devices with respect to a direction of a tow while maintaining the source array in a substantially inline direction (Figs. 1, 5-7) (Column 2, Lines 40-64; Column 5, Lines 43-67). Elholm discloses that the deflector devices are configured to position the source array on both sides of a center line of a tow vessel during a seismic survey (Fig. 1). Elholm discloses that the deflector devices are submerged underwater (Column 3, Lines 30-50; Column 4, lines 8-17; Column 5, Lines 43-67).

With regard to claim 83, Elholm discloses that the source array comprises a float disposed on the surface of the water (Column 5, Lines 44-63); one or more source coupled to the float such that the sources are suspended below the float (Column 5, Lines 44-63); and wherein the deflector device is also suspended below the float (Column 5, Lines 44-63) (Figs. 5-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elholm as applied to claims 1-2, 8-9, 12-16, 18-19, 21, 25-26, and 82-83 above, and further in view of Regnault (5319609).

With regard to claims 6-7, Elholm does not disclose that the positioning system is a satellite positioning system or that the positioning system is mounted on the source array. Elholm discloses using an acoustic positioning system mounted on the deflector device (Column 4), but not a satellite positioning system. Regnault teaches that it is known in the art of marine seismic surveying to use a GPS satellite positioning system mounted on a source array to determine location of marine seismic survey equipment (Column 3, Line 65 to Column 4, Line 11). It would have been obvious to modify Elholm to include a GPS satellite positioning system as taught by Regnault instead of the

acoustic positioning system in the deflector in order to obtain three dimensional coordinates of the source array using the GPS satellite network.

Claims 20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elholm as applied to claims 1-2, 8-9, 12-16, 18-19, 21, 25-26, and 82-83 above, and further in view of Kirby (4729333).

With regard to claims 20 and 22-23, Elholm does not disclose that the central body and actuator are made from metal and composites. Elholm does not disclose that the wings are constructed from metal or composites, or that the wings are constructed of metal covering a foam core. Elholm does not disclose the specifics of the materials used. Kirby teaches a marine seismic surveying system including a deflector with a central body and actuator made of metal and composites (Column 5, Lines 35-40; Column 7, Lines 15-52). Kirby teaches that the one or more wings are constructed from metal or composites and that the one or more wings are constructed of a metal skin covering a foam core (Column 5, Line 62 to Column 6, Line 3). It would have been obvious to modify Elholm to include using metal and composites as taught by Kirby in order to use lightweight materials that are strong enough to use in the marine environment.

Claim 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Elholm in view of Kirby as applied to claim 23 above, and further in view of George (4719987).

With regard to claim 24, Elholm and Kirby not disclose that the skin is titanium or stainless steel. George discloses that it is known in the art of marine seismic surveying to use steel in the components of the arrays (Column 1). Therefore, it would be obvious to one of ordinary skill in the art to use a steel covering as this is a known material for components of in-water seismic survey equipment.

Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elholm as applied to claims 1-2, 8-9, 12-16, 18-19, 21, 25-26, and 82-83 above, and further in view of Dolengowski (4890568).

With regard to claim 27, Elholm discloses an acoustical transducer and receiver coupled to the source array, and a controller (Column 4, Lines 34-40; Column 5), but does not disclose that the controller adjusts the deflector device to steer clear of an obstruction located by the acoustical transducer and receiver. Dolengowski teaches that acoustical transducers and receivers can be used with marine seismic arrays in order to locate and navigate around obstructions and obstacles and to avoid entanglement of the equipment in the array (Column 2, Line 60 to Column 3, Line 42). It would have been obvious to modify Elholm to include an acoustical transducer and receiver that feed information to the controller as taught by Dolengowski in order to locate and navigate around obstructions and obstacles and to avoid entanglement of the equipment in the array.

With regard to claim 28, Dolengowski teaches that the acoustical transducer and receiver are sonar devices (Column 2, Line 60 to Column 3, Line 42).

With regard to claim 29, Dolengowski teaches that the obstruction is moored devices, floating devices, lead in cables, umbilicals, or towed equipment (Column 2, Line 60 to Column 3, Line 42).

With regard to claim 30, Dolengowski teaches that the acoustic transducer and receiver are pointed in a given direction (Column 2, Line 60 to Column 3, Line 42).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Scott A. Hughes/
Examiner, Art Unit 3663